

Lisa: Remember Dad, the handle of the Big Dipper points to the North Star
Homer: Hehehe. That's nice, Lisa. But we're not in Astronomy class, we're in the woods.



Homer (Astro)Physics 101

Feb 3rd, 2006

Questions I'll try to answer

Where are we?

How did we get here?

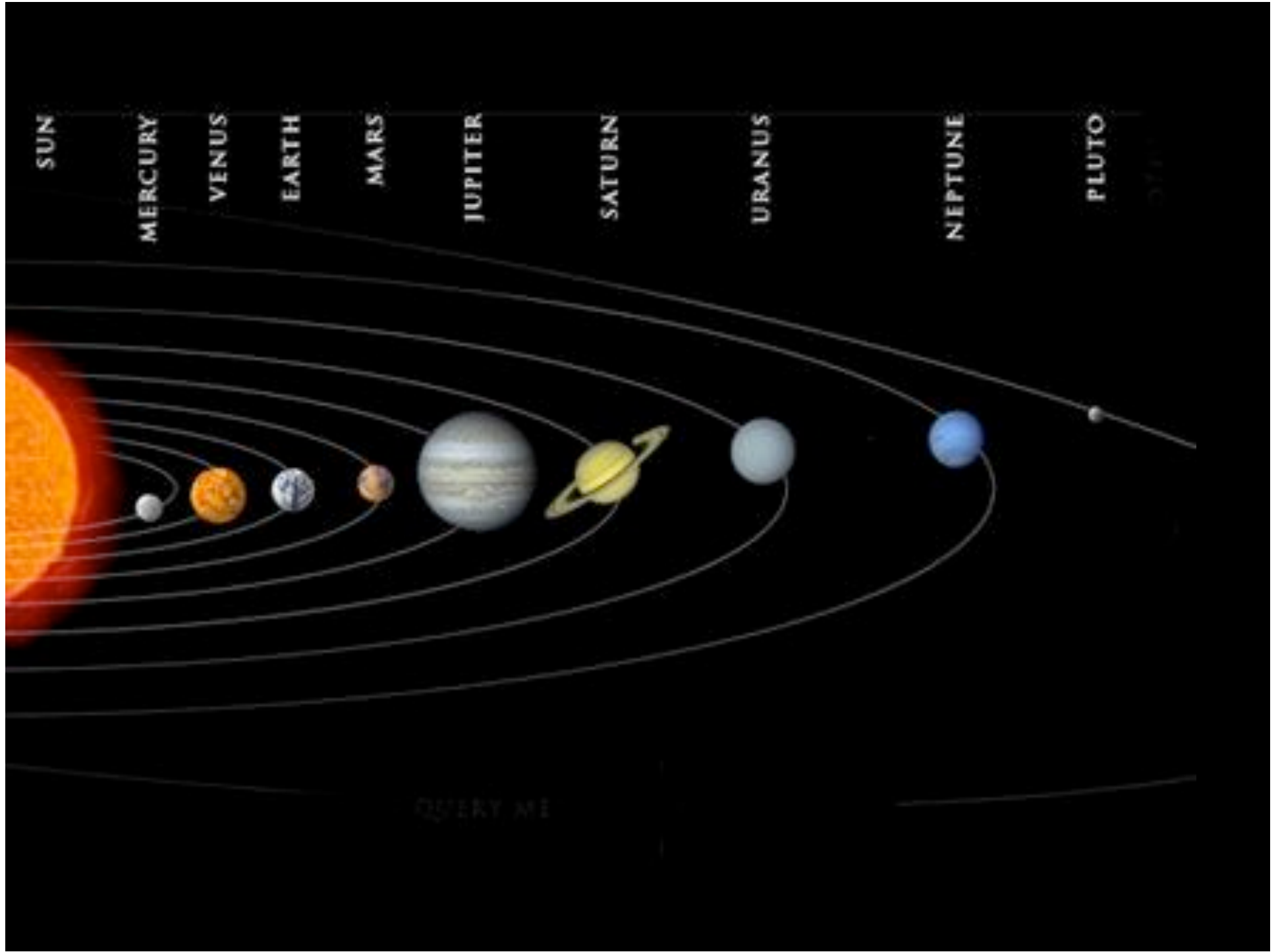
What do those astro people upstairs do that means they have to go out for coffee so much??

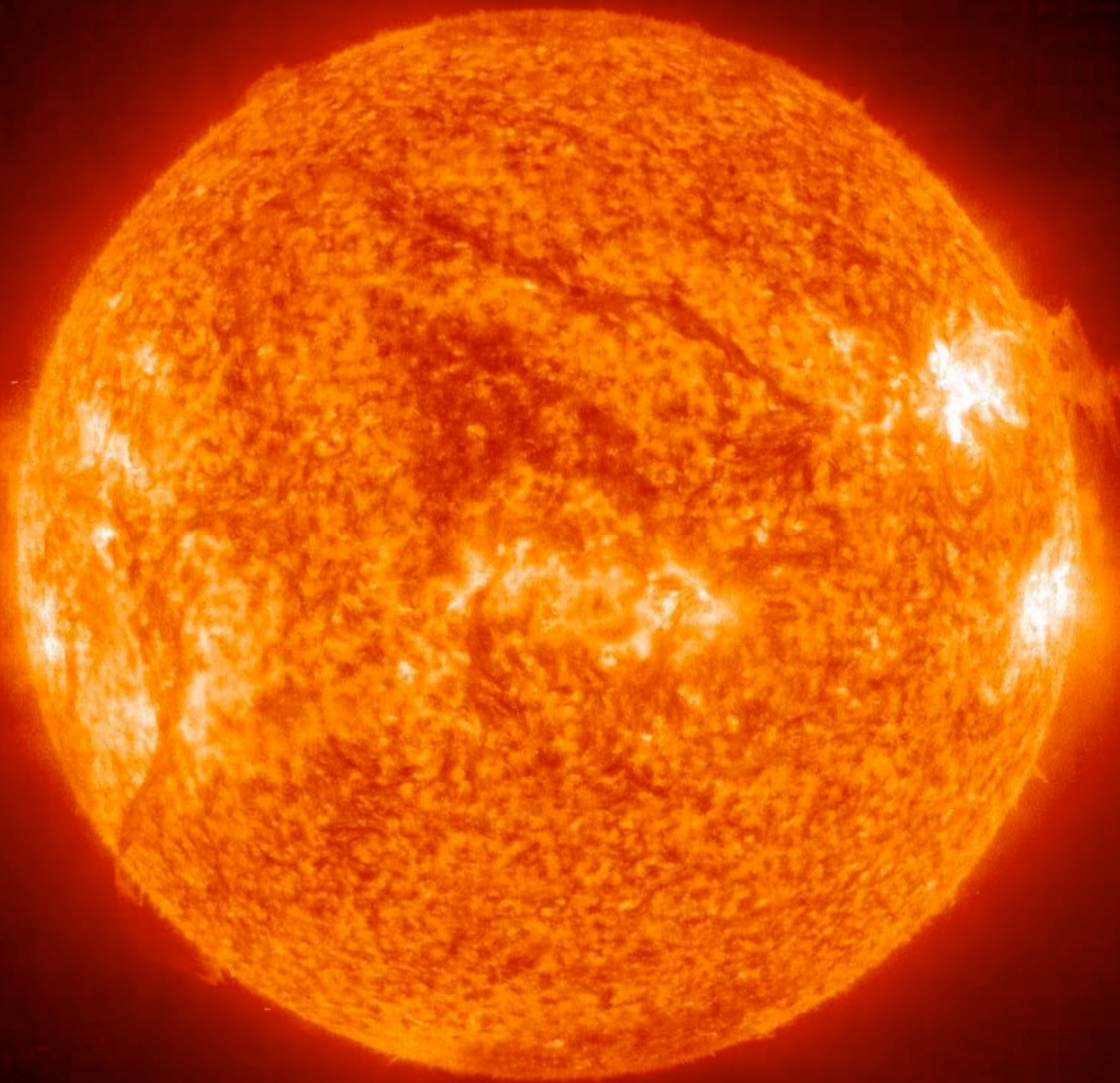
Questions I won't answer

Why are we here?

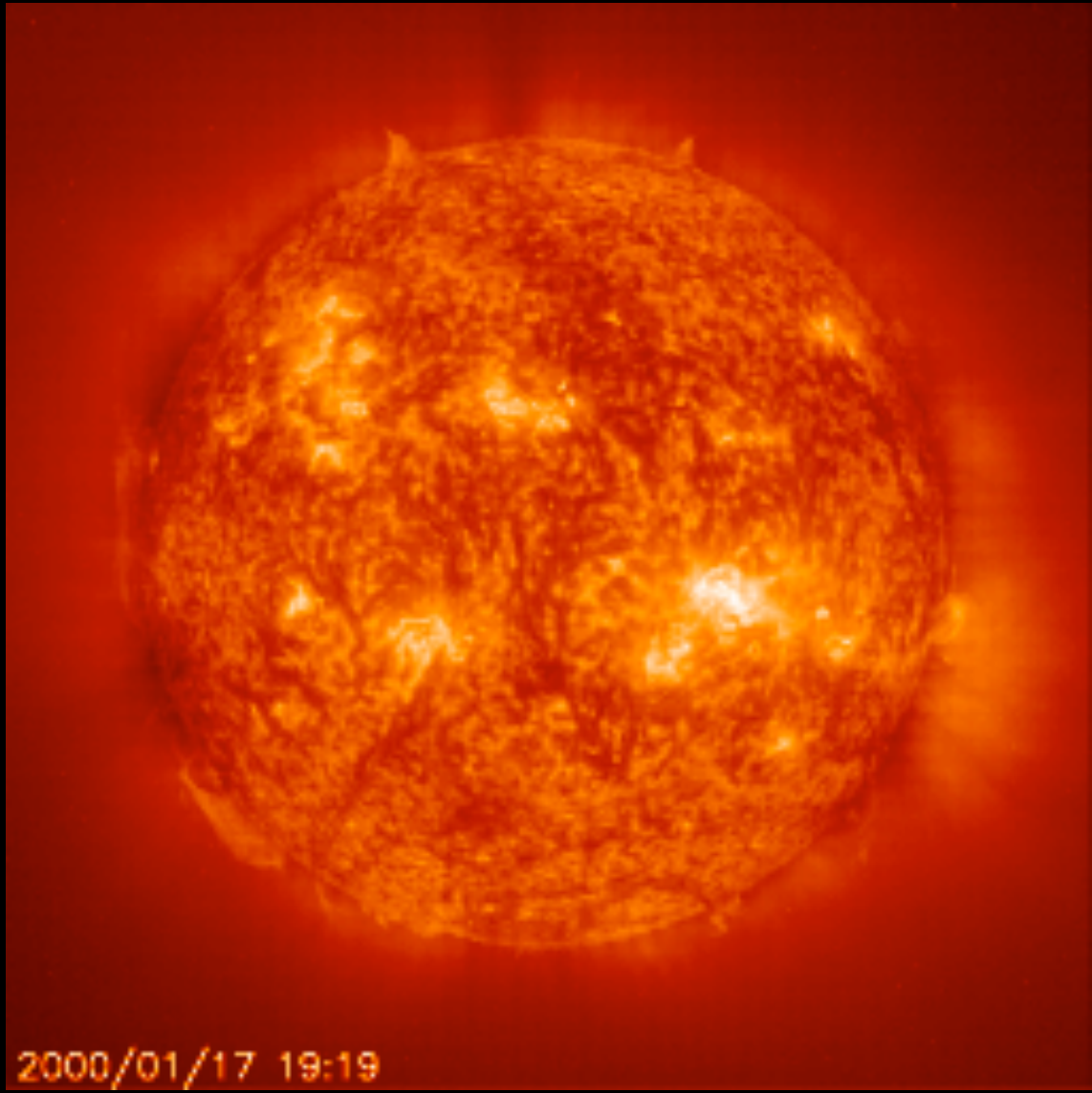
Is there intelligent life out there?



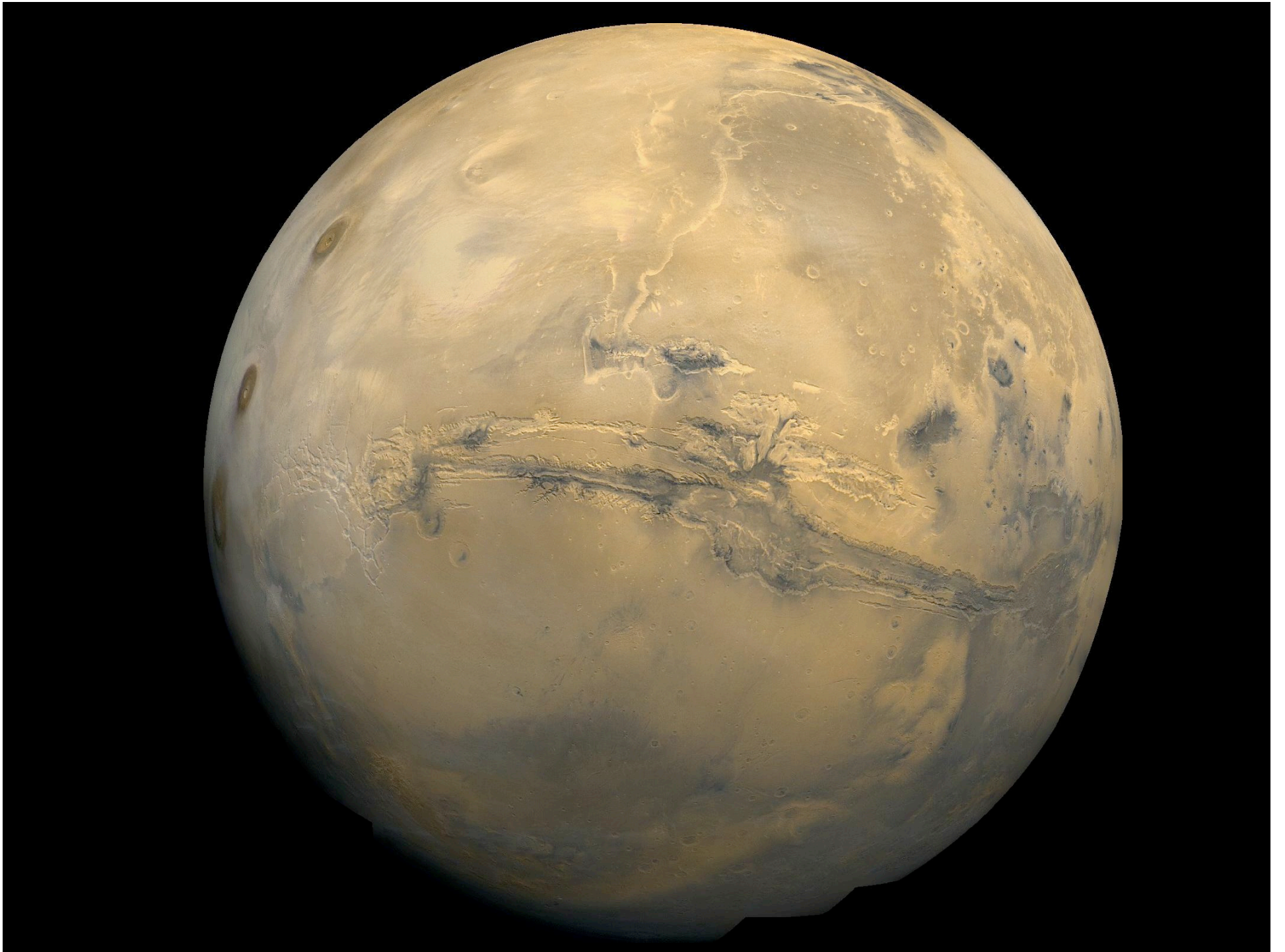


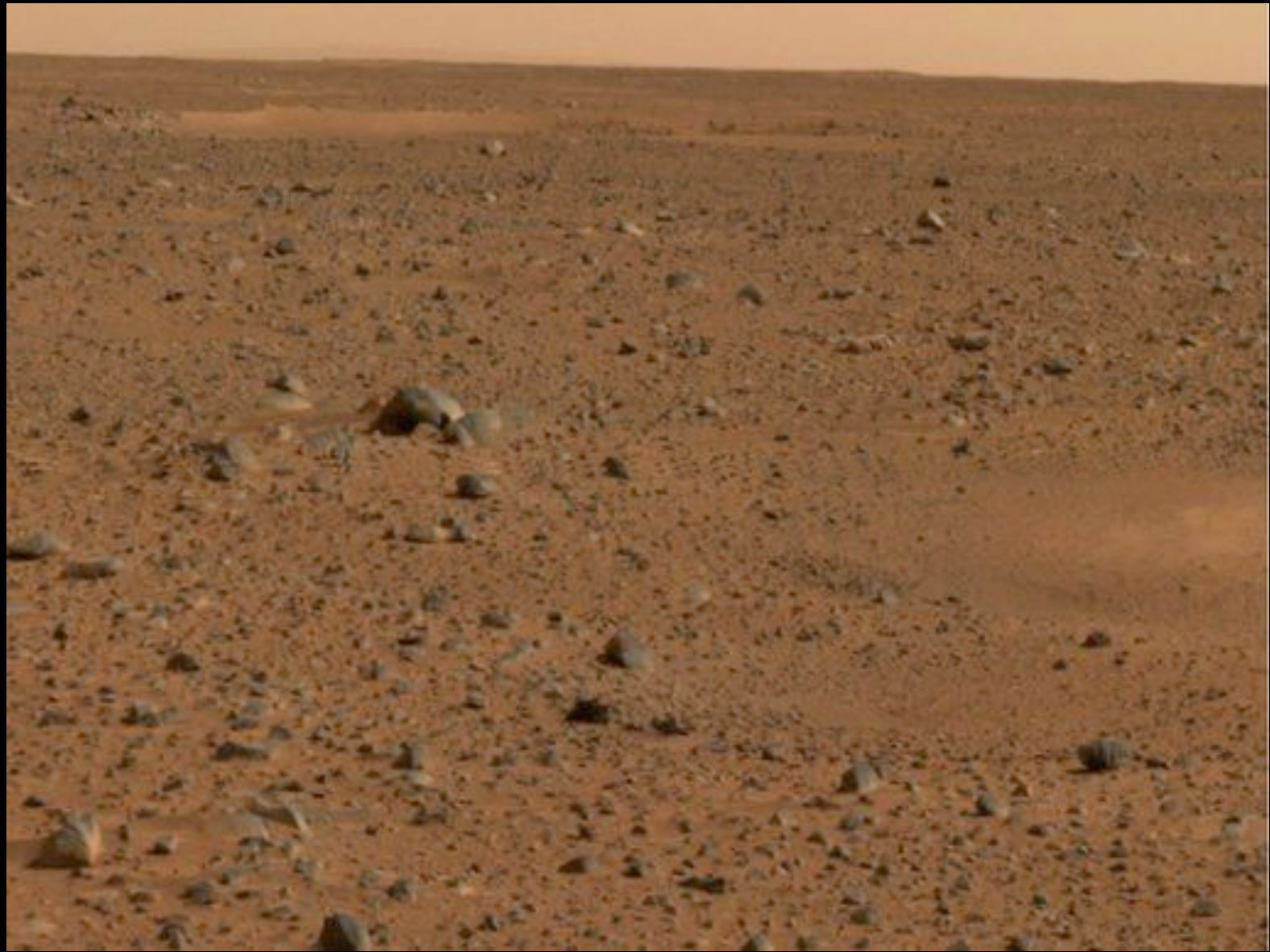


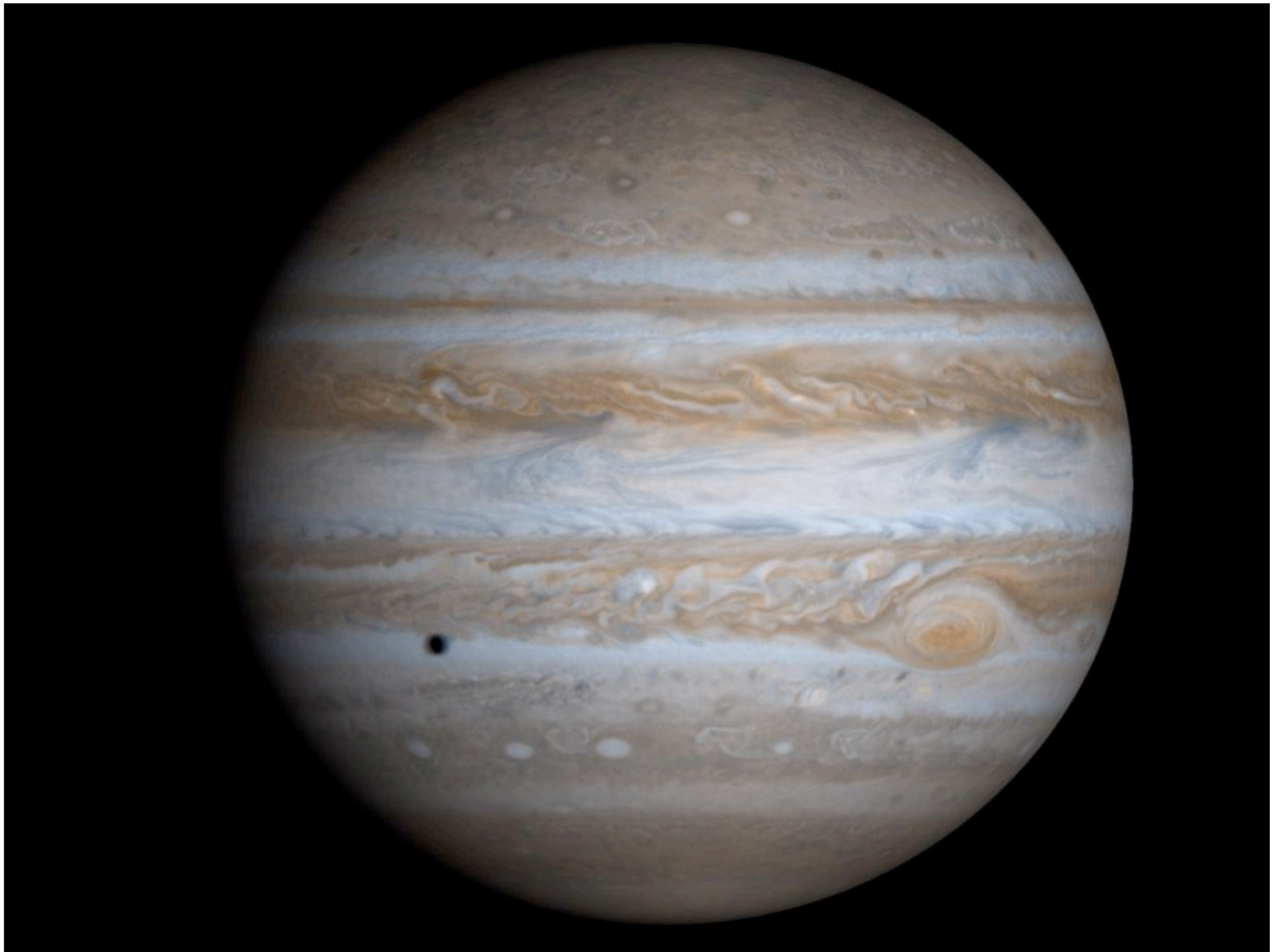
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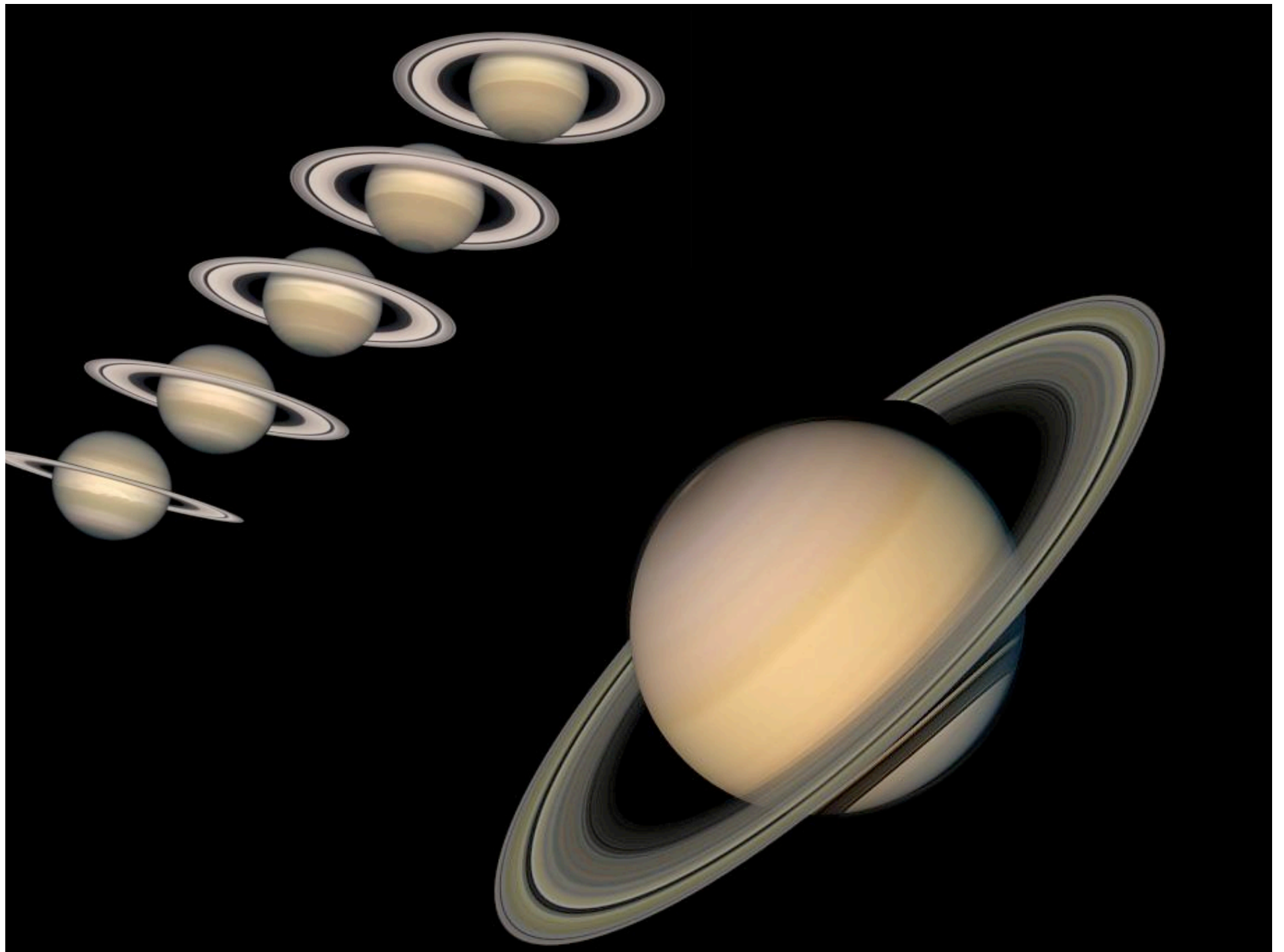
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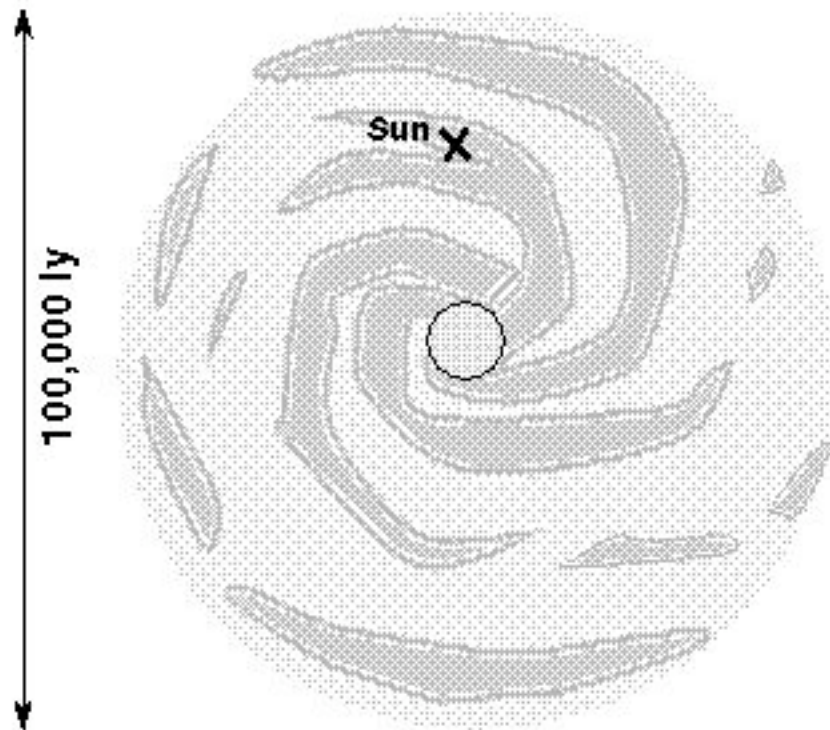




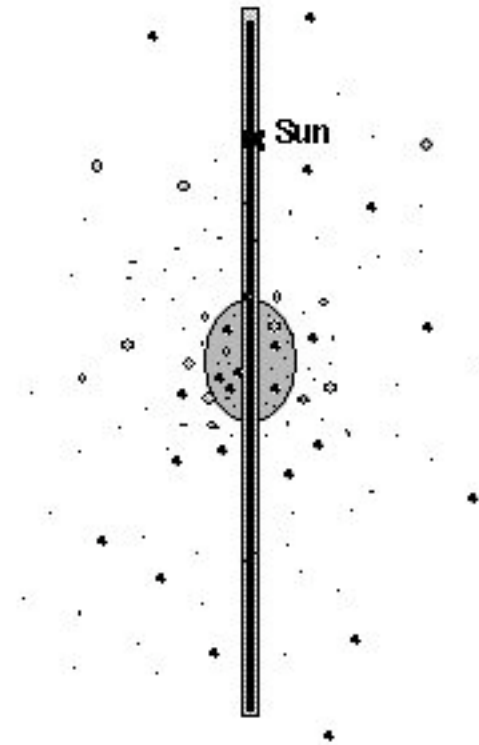




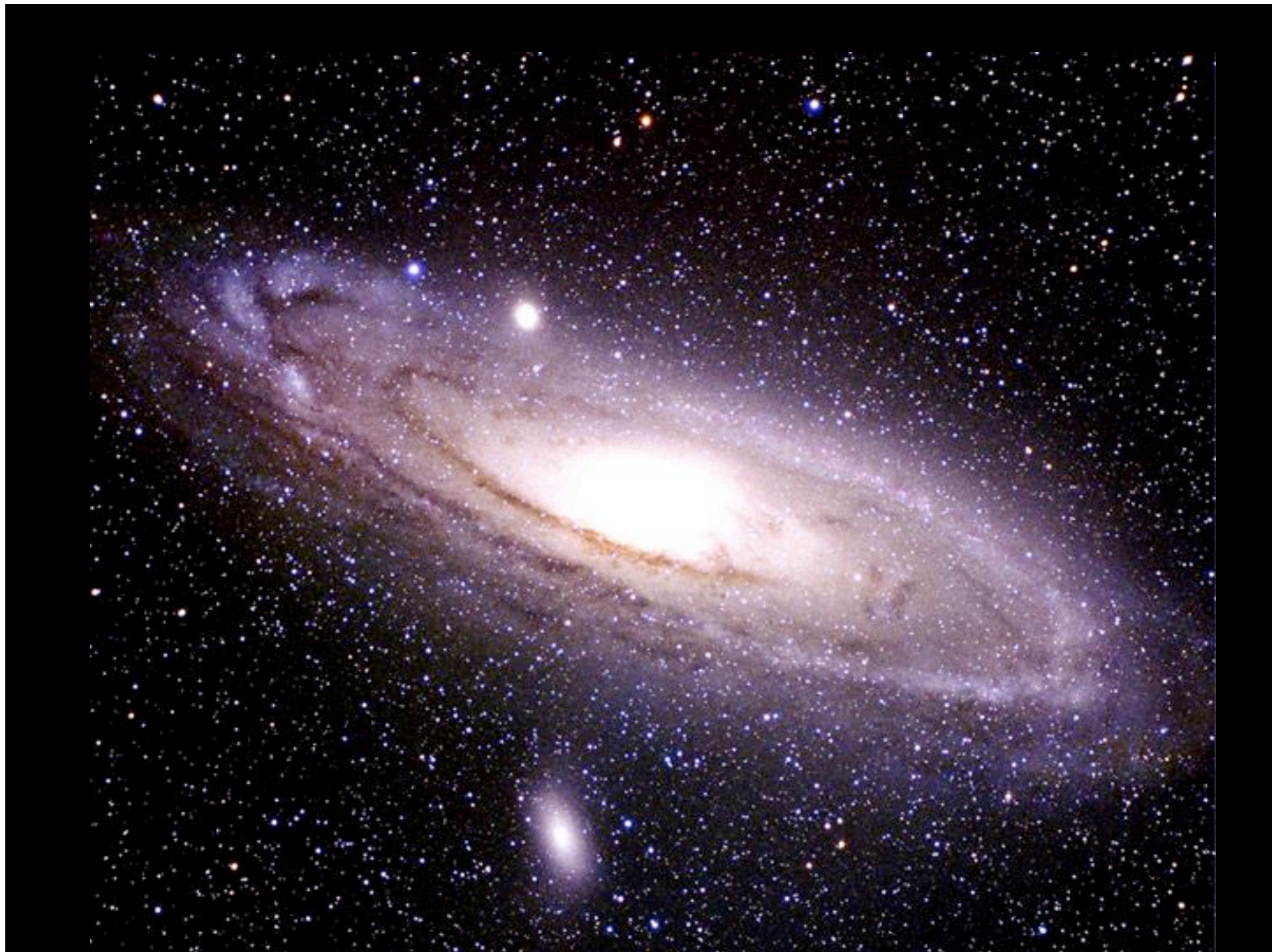
Milky Way Galaxy

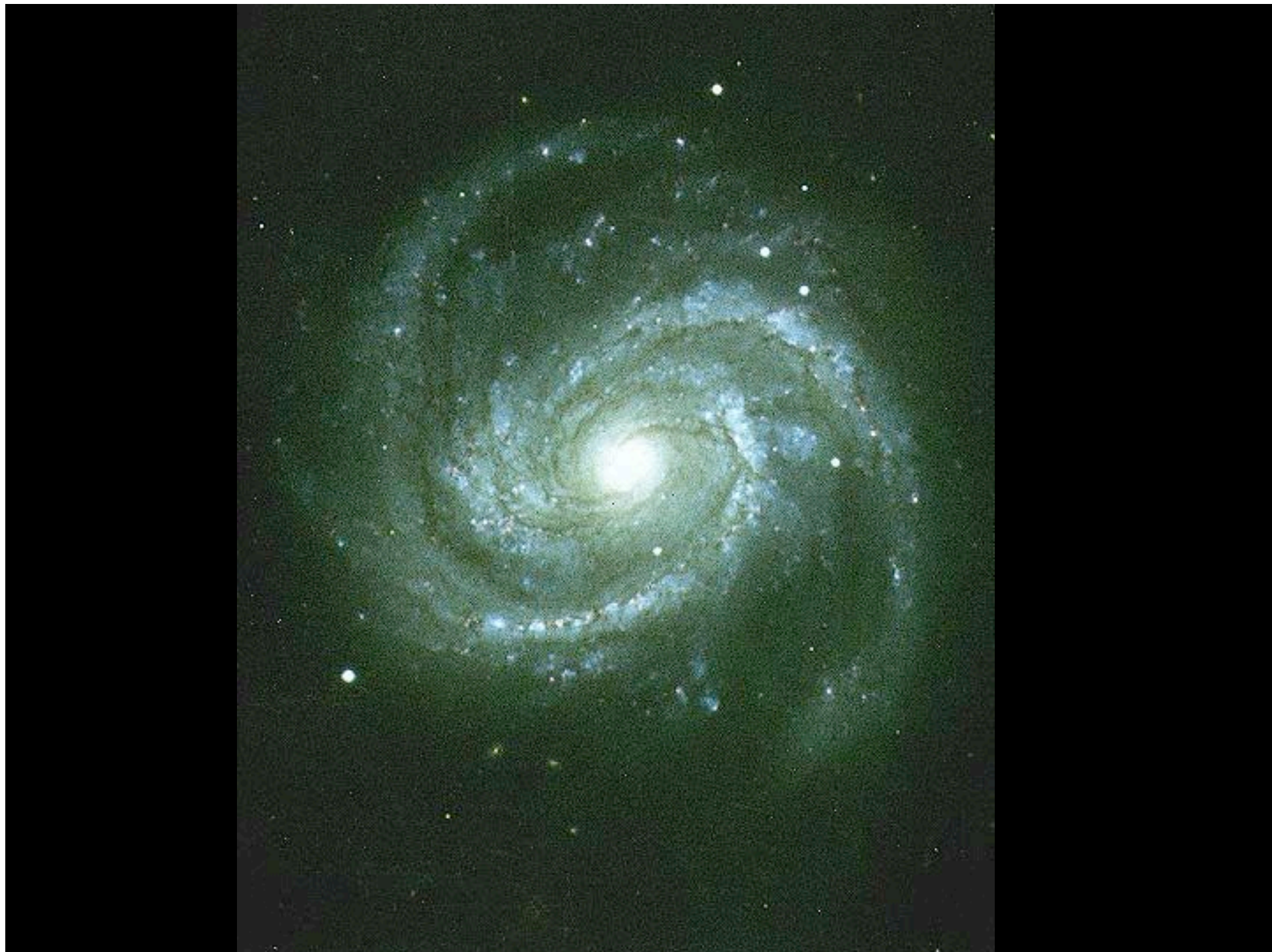


Top View



Side View



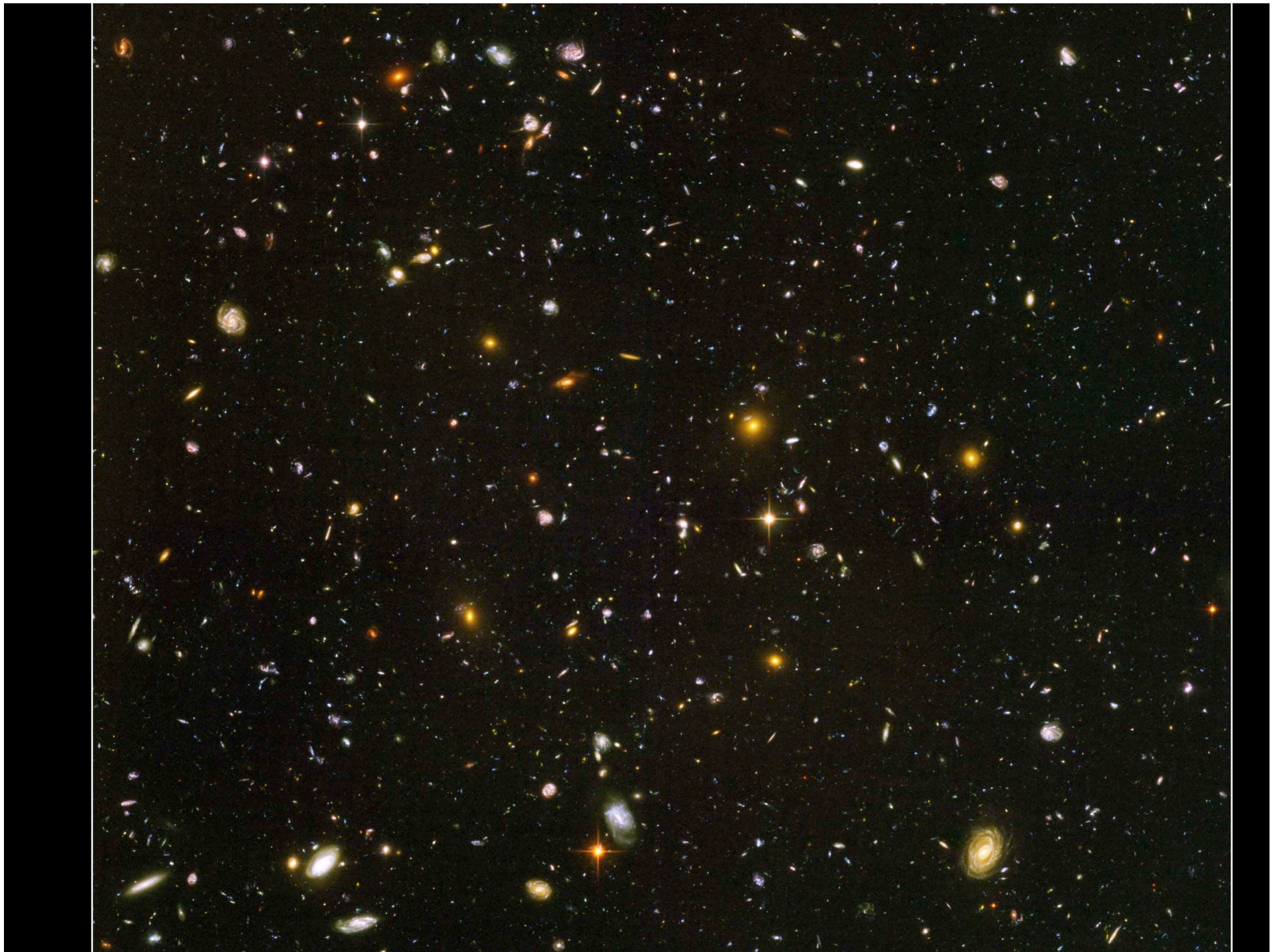


Sombrero Galaxy • M104



Hubble
Heritage

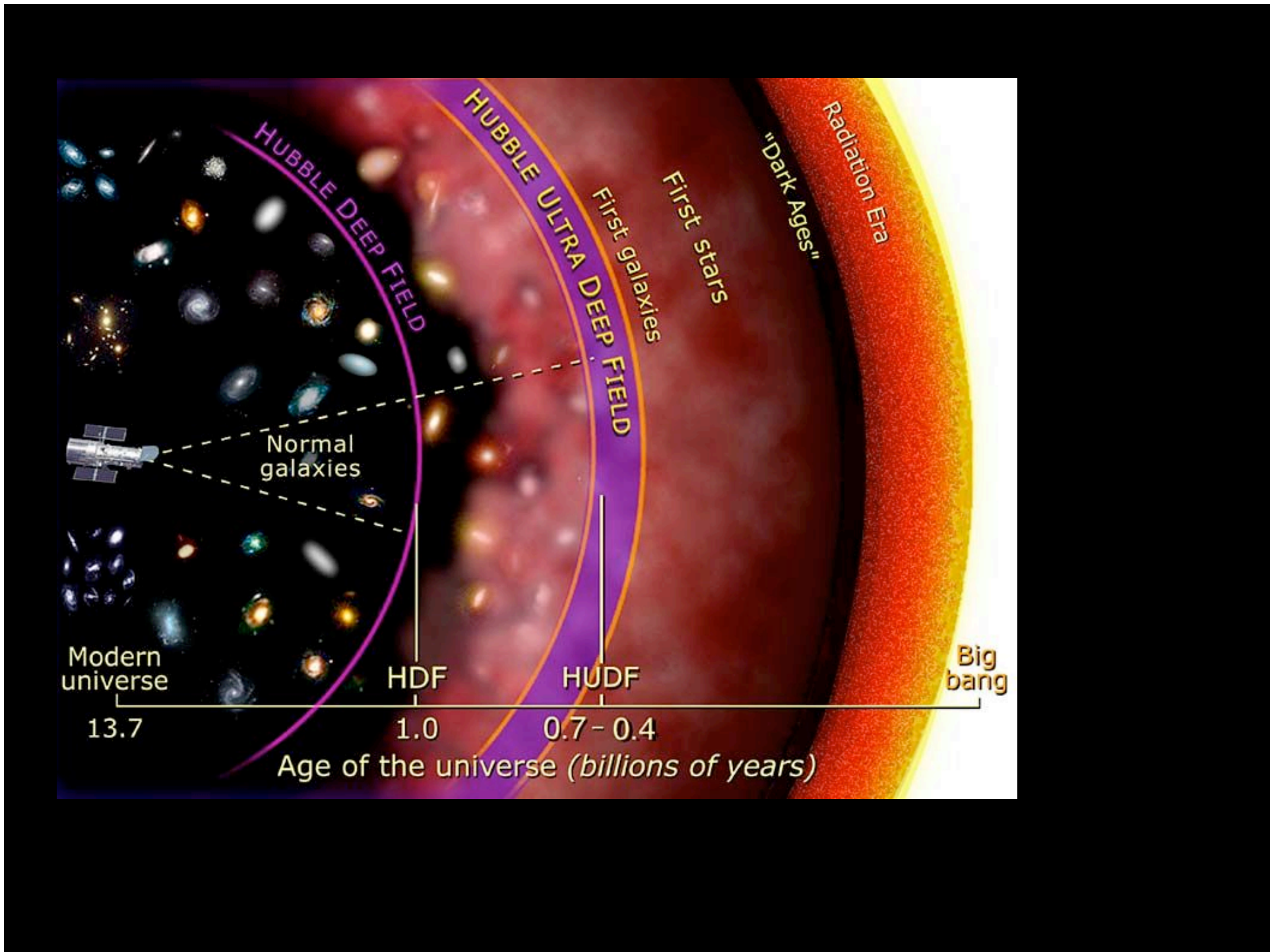


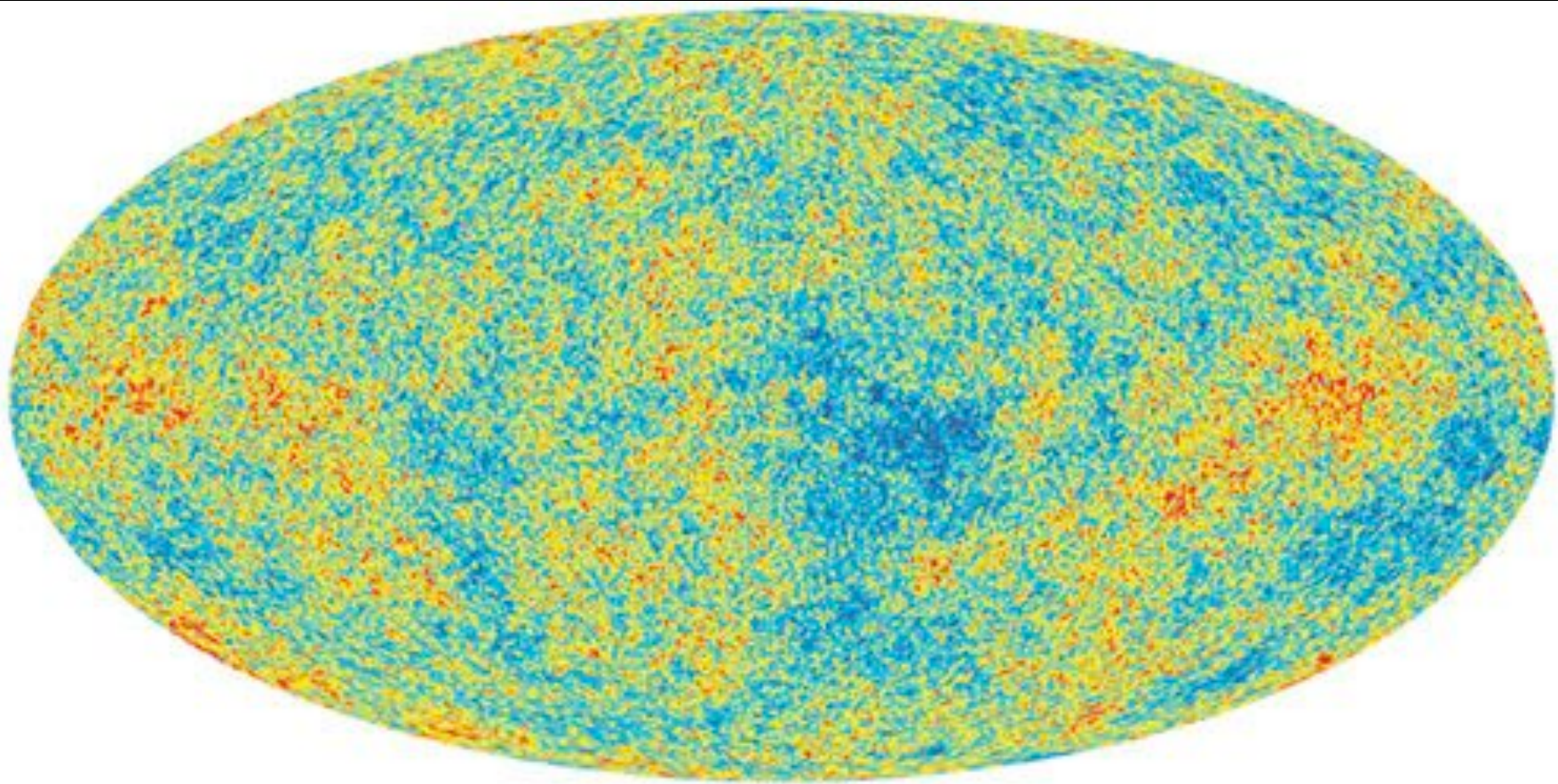


Distances...

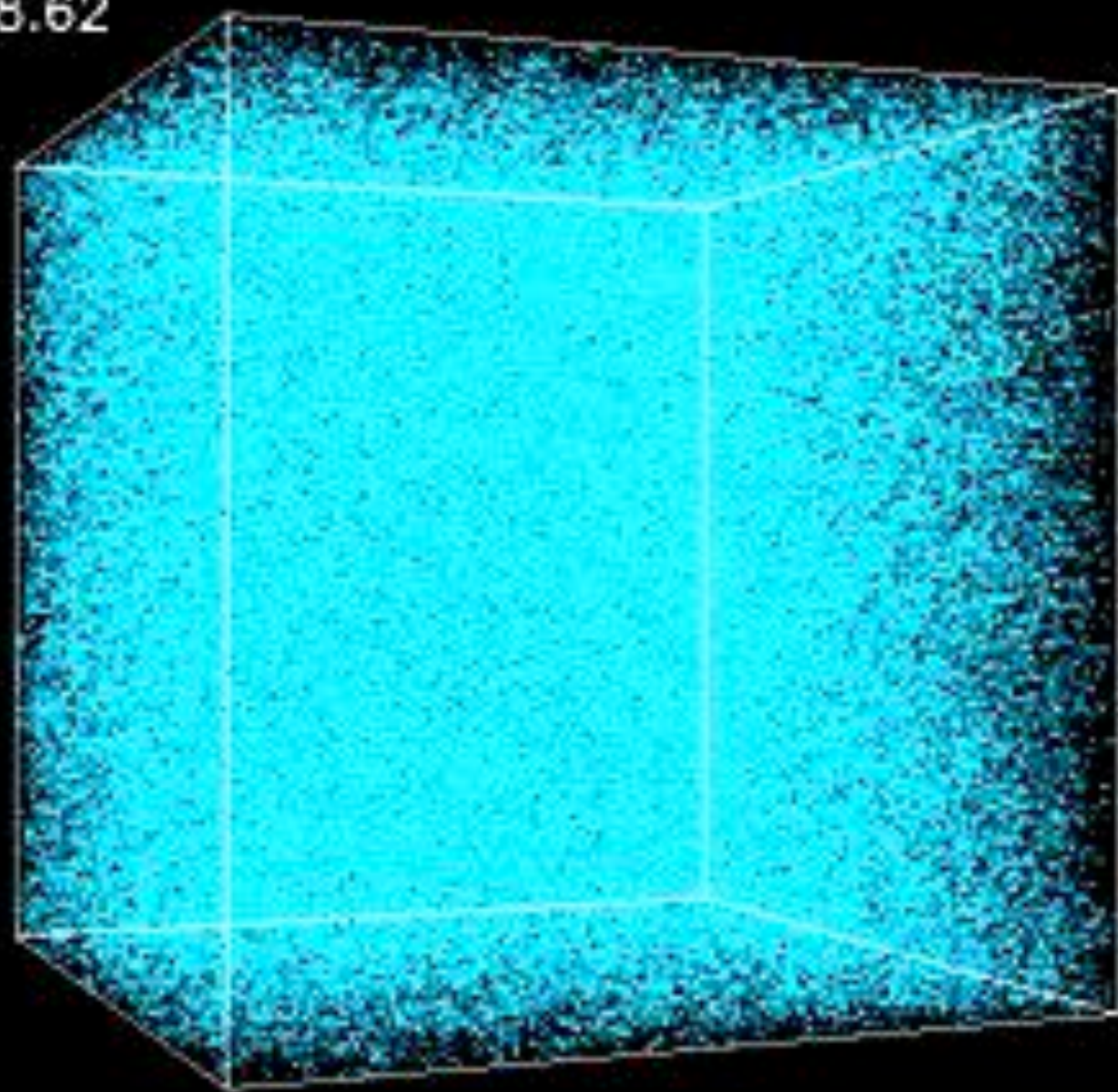
Montreal	10 km	
Canada	3000 km	
Radius of Earth	6400 km	
Earth - Moon	385000 km	
Earth - Sun	150 million km	8 light minutes
Nearest star	40 million million km	4.3 light yrs
Size of Galaxy		30000 ly
Next Galaxy		3 million ly
Universe		10 billion ly

... and ages



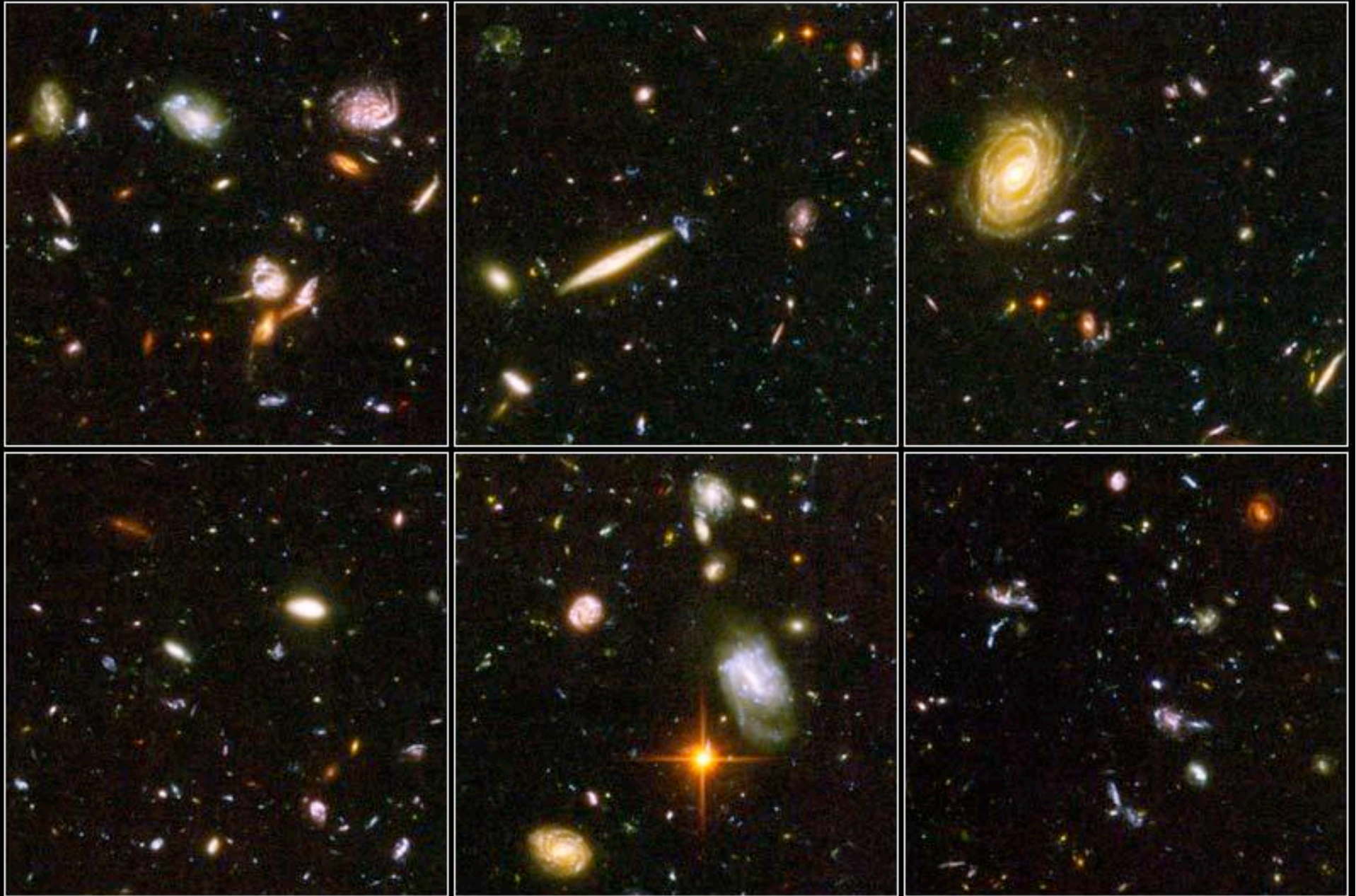


$Z=28.62$



Hubble Ultra Deep Field Details

HST ■ ACS



NASA, ESA, S. Beckwith (STScI) and The HUDF Team

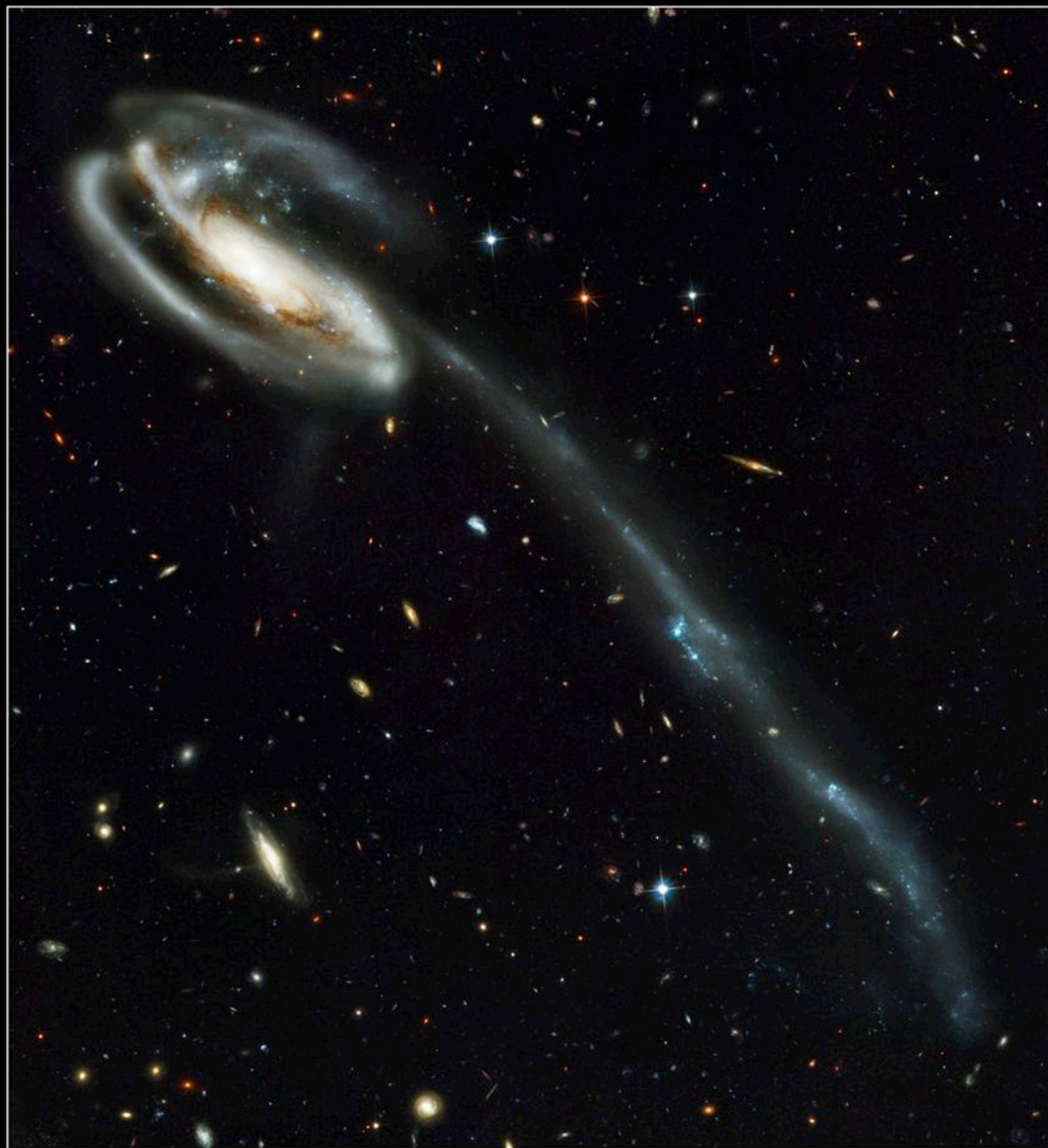
STScI-PRC04-07c



Colliding Galaxies NGC 4038 and NGC 4039

HST • WFPC2

PRC97-34a • ST ScI OPO • October 21, 1997 • B, Whitmore (ST ScI) and NASA



Tadpole Galaxy • UGC 10214
Hubble Space Telescope • Advanced Camera for Surveys

NASA, H. Ford (JHU), G. Illingworth (UCSC/LO), M. Clampin (STScI), G. Hartig (STScI),
the ACS Science Team and ESA • STScI PR000-11

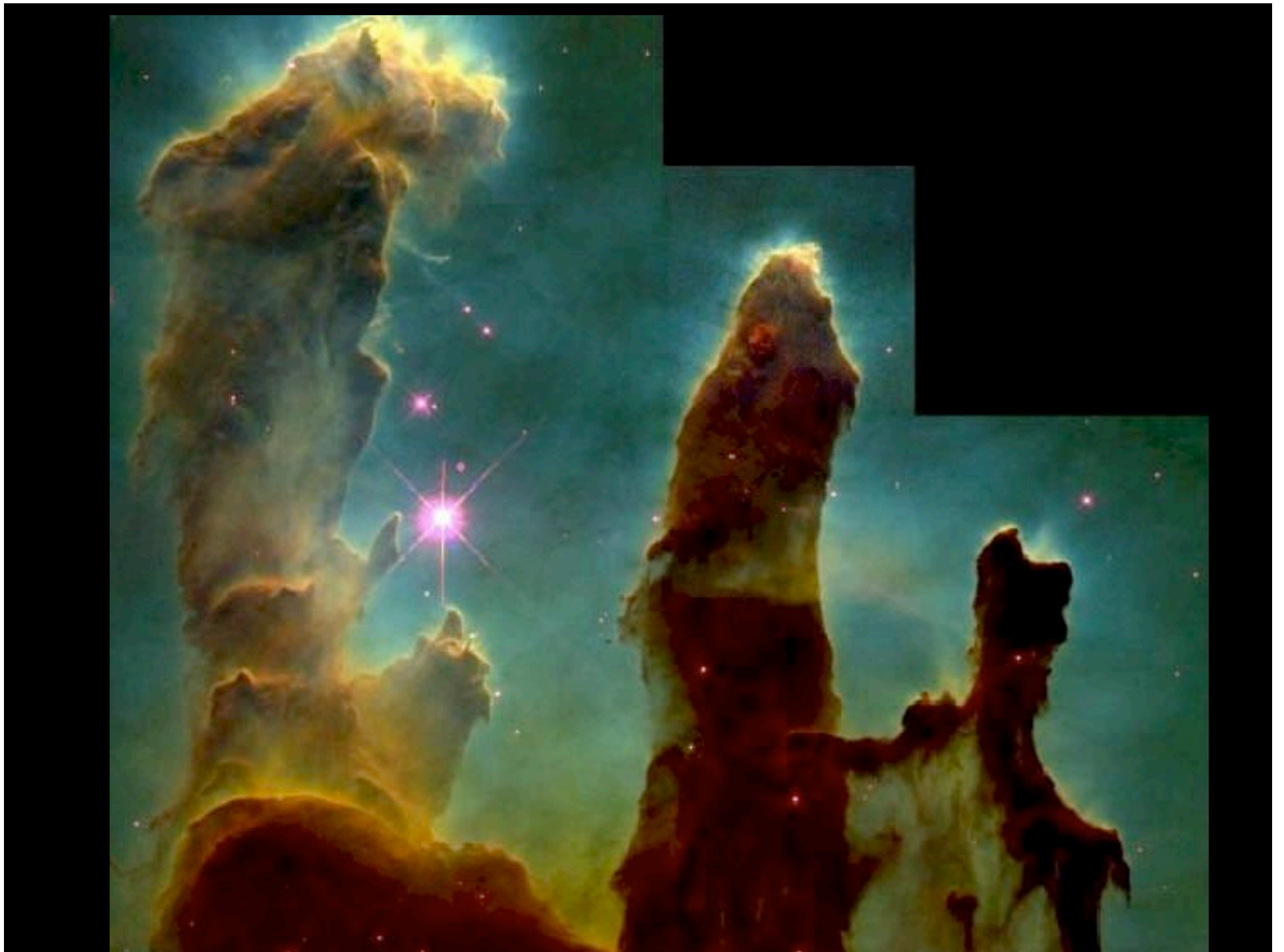
Orion Nebula • M42

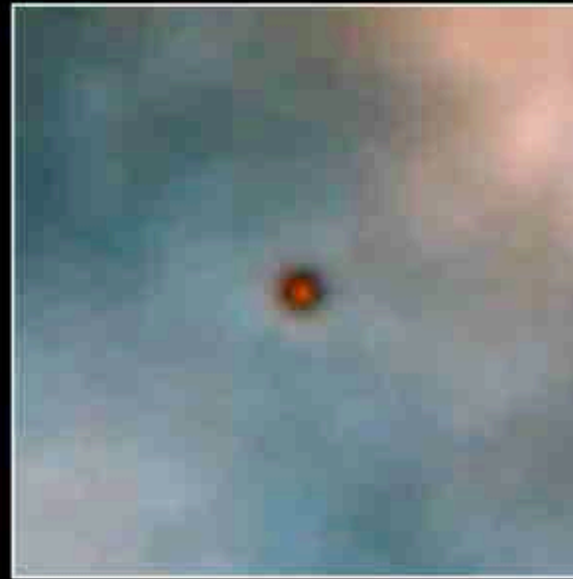
HST • ACS/WFC



NASA, ESA, M. Robberto (STScI), and the HST Orion Nebula Team

STScI-PRC06-01a



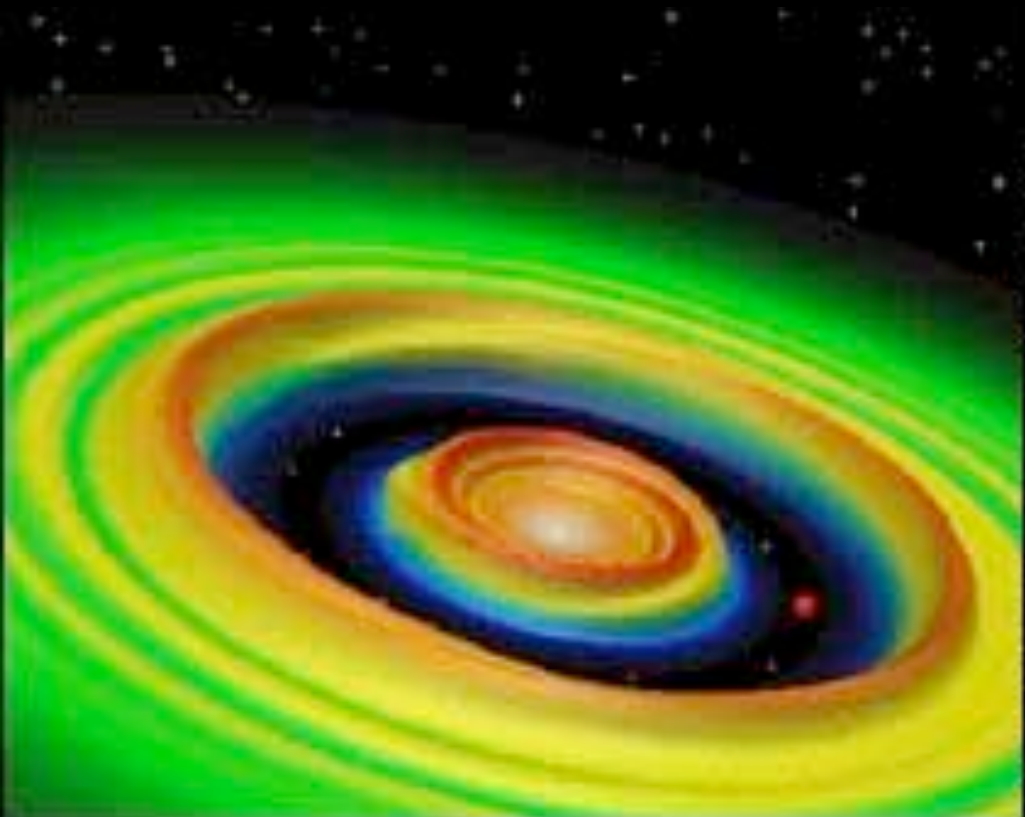


**Protoplanetary Disks
Orion Nebula**

HST · WFPC2

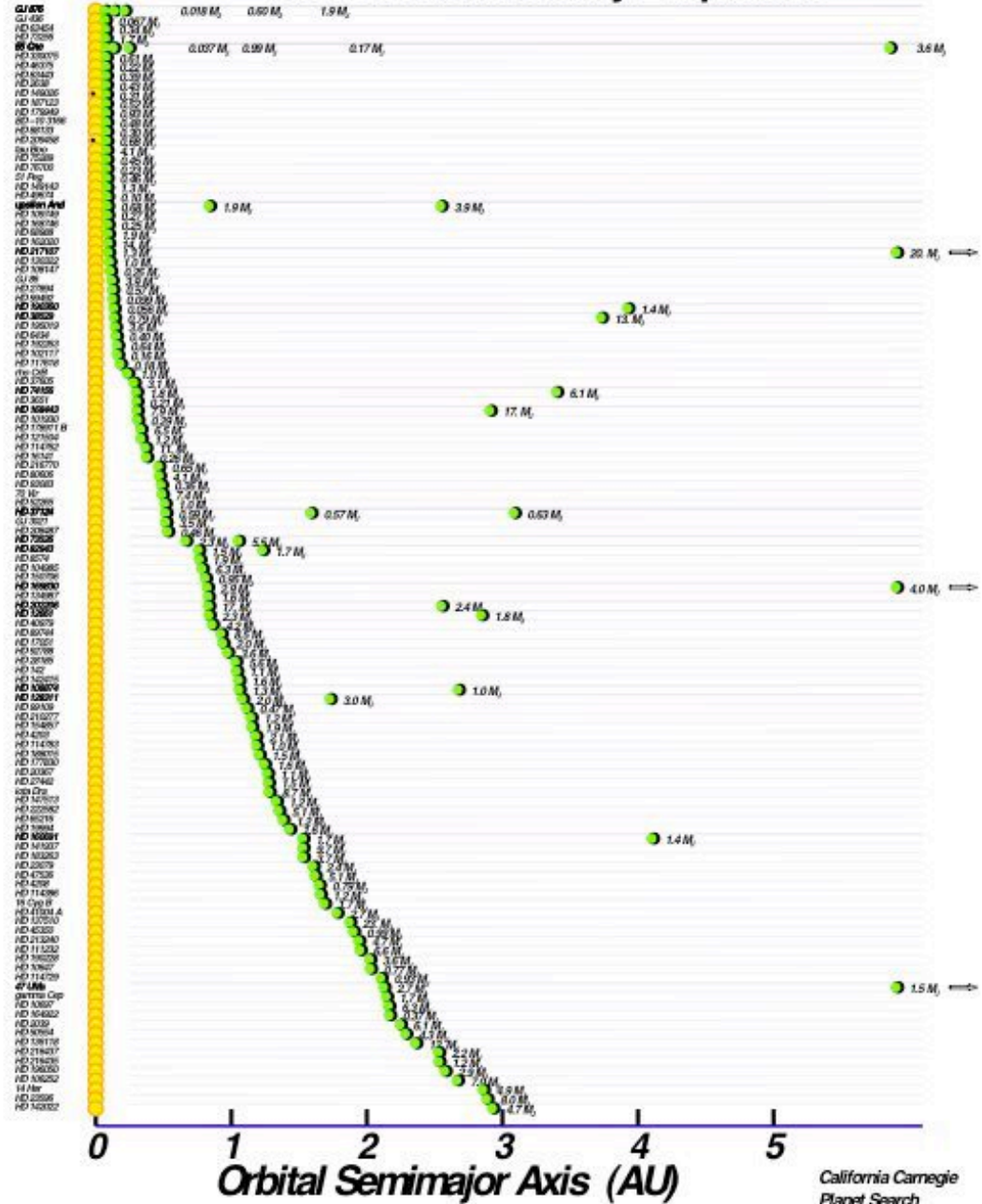
PRC95-45b · ST ScI OPO · November 20, 1995

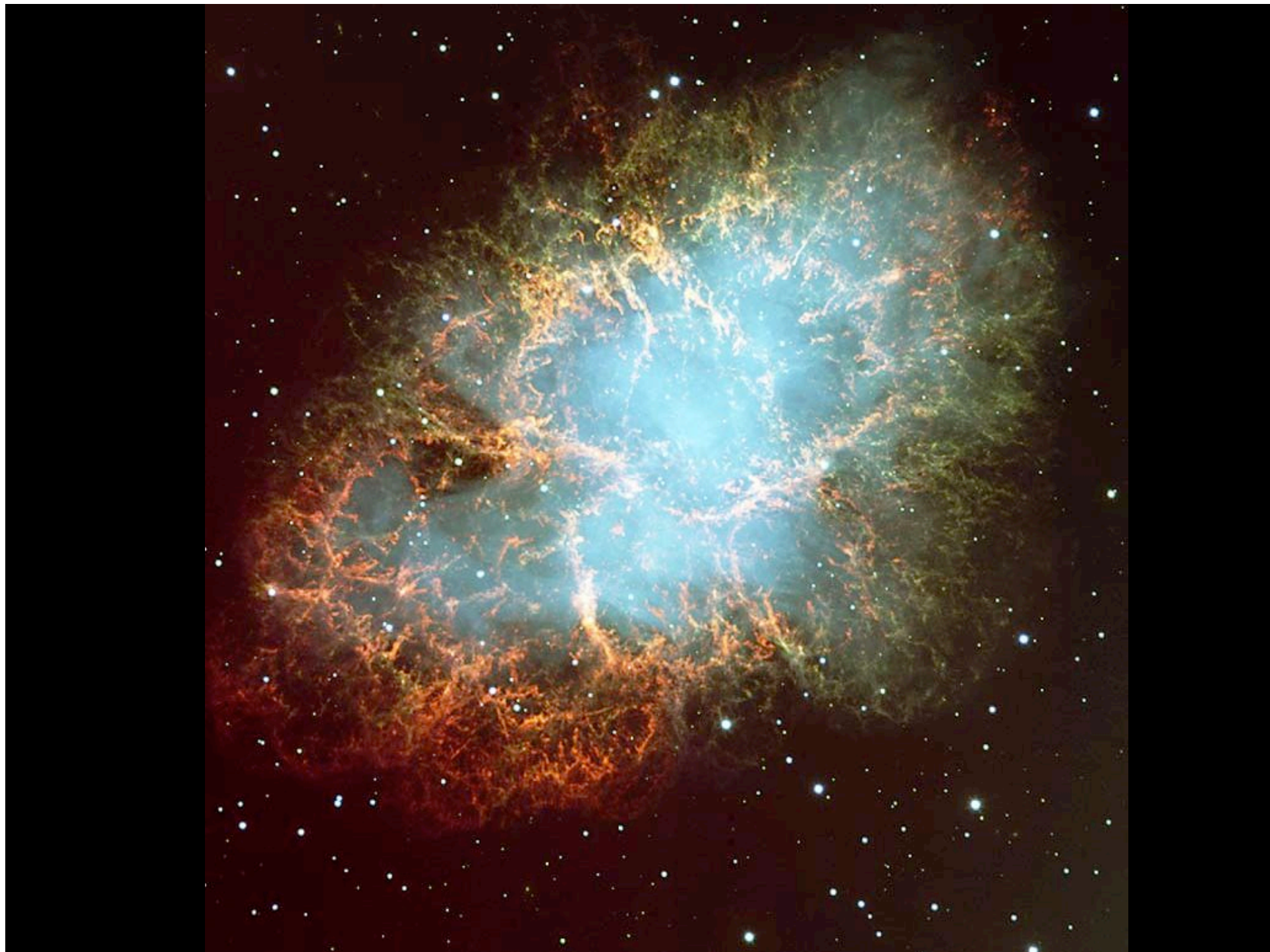
M. J. McCaughrean (MPIA), C. R. O'Dell (Rice University), NASA



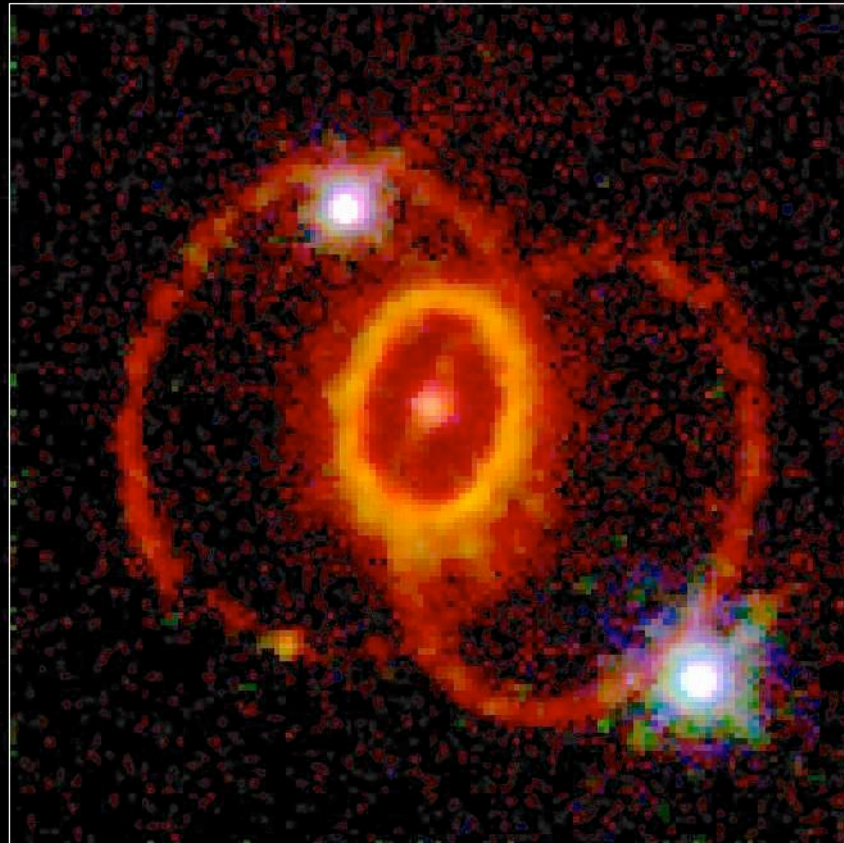
(GEOFFREY BRYDEN/NASA)

The 156 Known Nearby Exoplanets



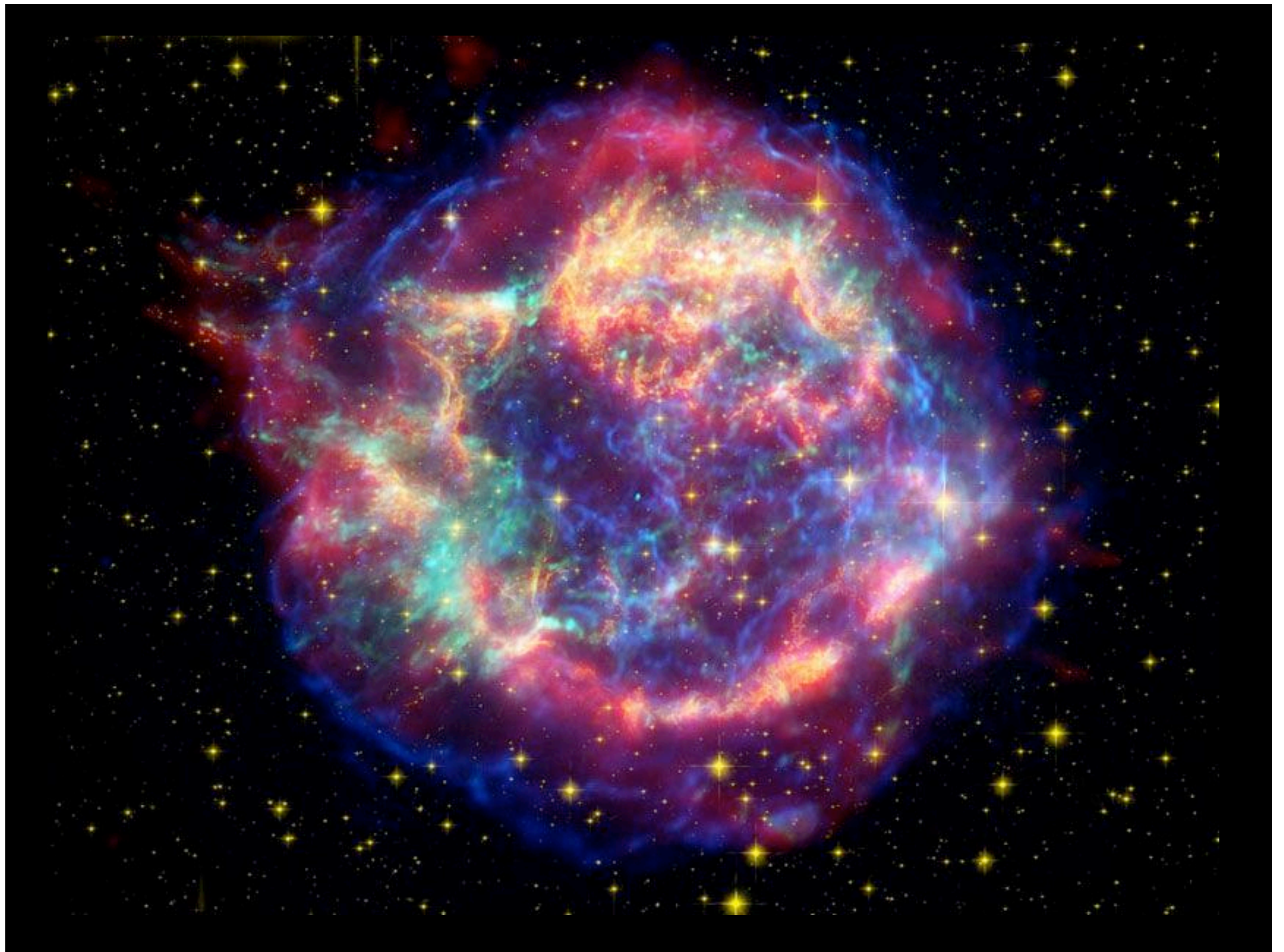


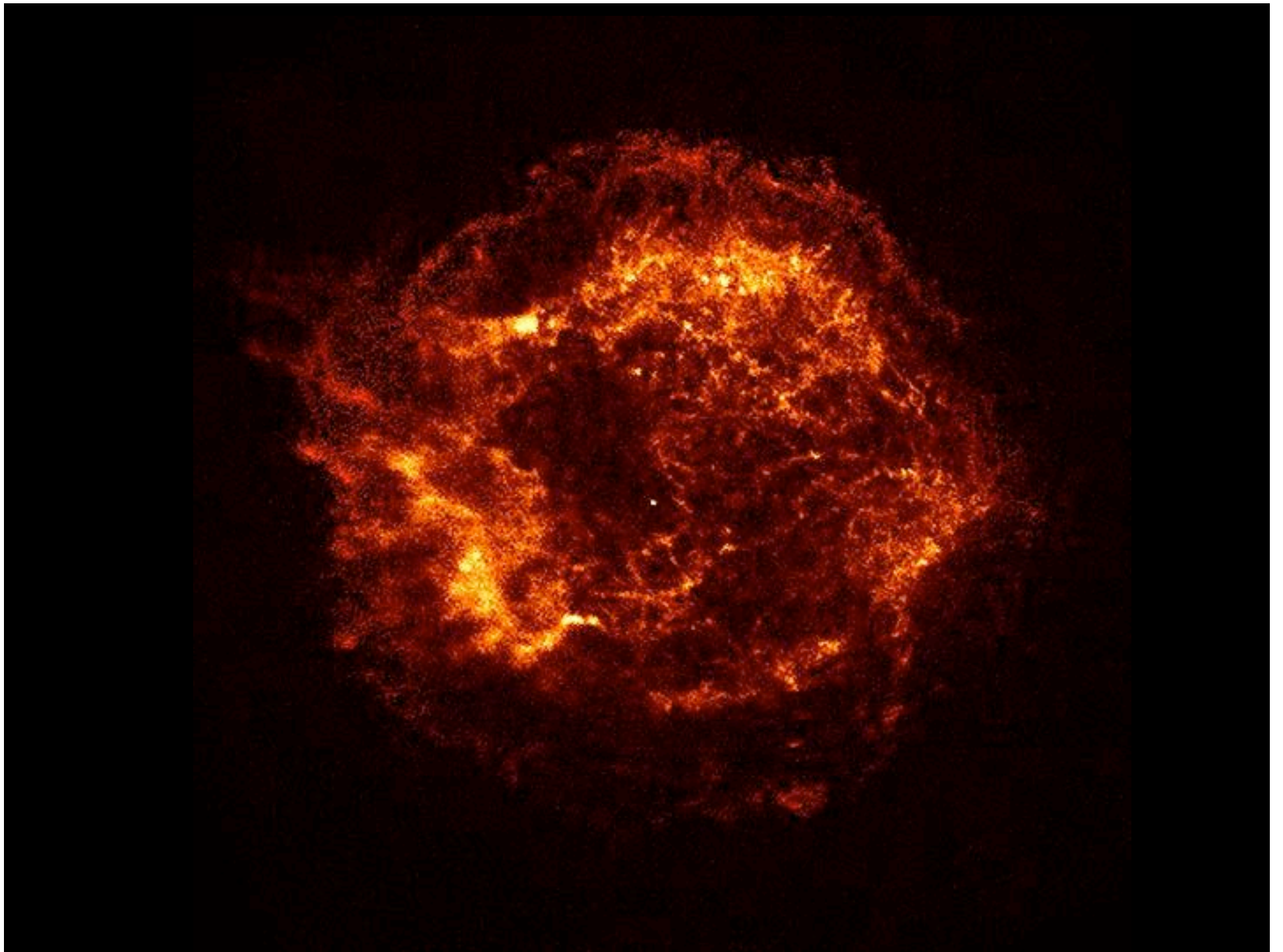
Supernova 1987A Rings



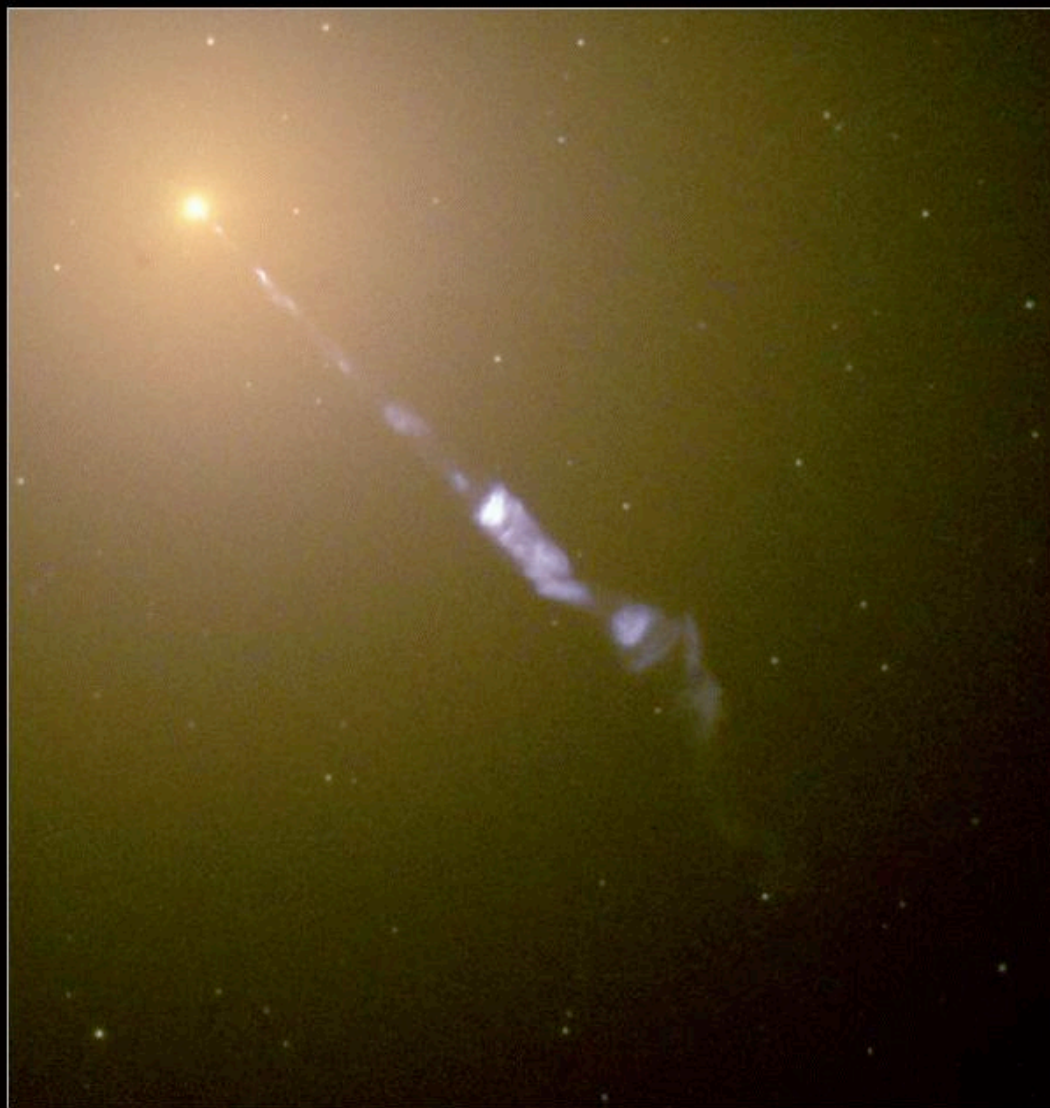
Hubble Space Telescope
Wide Field Planetary Camera 2



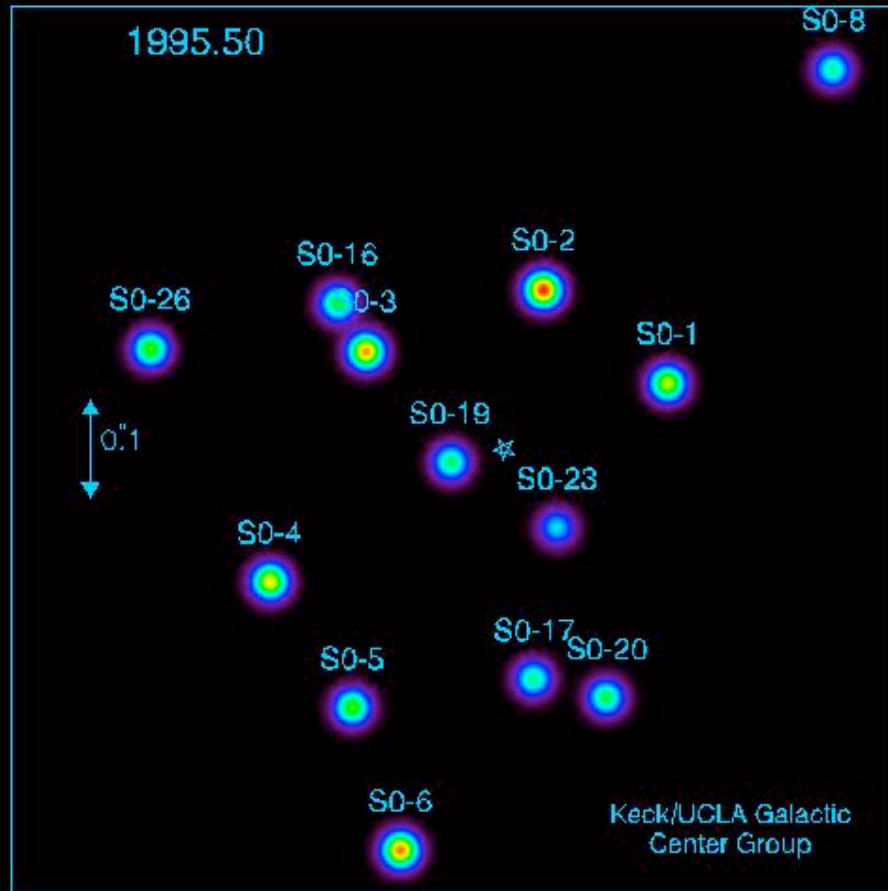




The M87 Jet



Hubble
Heritage





ASA/HST/CXC/ASU/J. Hester et al.

